September-October1992, Volume 50, Number 5

PUBLIC POWER

FEATURES

Cover Story

Cover photo by Orville Andrews

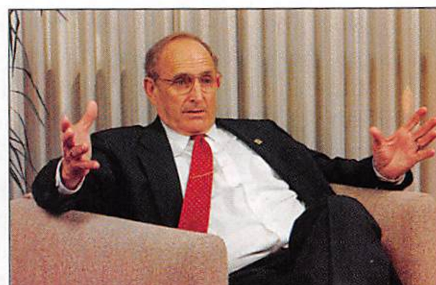
12 **Buyer Beware**
Consumer-owned utilities have scaled one hurdle toward transmission access, but be prepared to meet some pit bulls at the negotiating table.

20 **Water To Burn: The Coming Hydrogen Age?**
It increasingly looks like hydrogen—the energetic component of H_2O—may have a major role in the future as a versatile, clean-burning fuel.

30 **Getting Ready For Metric**
The Bonneville Power Administration does what it can to replace inches and pounds with centimeters and kilograms.

39 **Riding The Yield Curve**
Salt River Project is swapping debt obligations with other borrowers. It's trading long-term fixed interest payments for short-term variable ones.

42 **Automatic Meter Reading**
Technological advances have been the catalyst to produce reliable cost-effective products capable of providing benefits that justify use of AMR systems.



p.50

50 **Vintage Public Power**
A veteran municipal utility manager talks about the importance of partnerships, cost control and long-range planning.

54 **Order No. 636: Opportunities For Gas-Burning Utilities**
A new federal rule should offer opportunities for electric generators to reduce natural gas costs.

58 **TQM: Business As Usual**
Garland Power & Light is determined to provide the highest level of service and reliability to its customers.

62 **Heber City's Lights**
A ravaging forest fire underscored the importance of generation self-sufficiency for this utility.

DEPARTMENTS

6 Something To Think About
8 Chronicle
47 Monograph
48 Innovations
70 Omega

p. 48

by Larry Hobart
Executive Director
American Public Power Association

"Industrial policy, the notion that government should help the industries and technologies of the future, is moving out of the doghouse and into the limelight," *The New York Times* reported in July. One example: electric vehicles.

A BOOST FOR ELECTRIC VEHICLES

The Department of Energy has joined with the three U.S. automakers and the Electric Power Research Institute in a 50-50 four-year $260 million effort to develop advanced batteries that can make widespread use of electric cars feasible by the year 2000. Money has already been allocated to projects of two national laboratories plus the Ovonic Battery Co. in Michigan.

Congress has incorporated in both the Senate and House versions of the National Energy Strategy authorization of further funding for research, development and demonstration to advance electric transit. Both bodies would mandate future utility purchase of "alternative fuel" (which includes electricity) fleet vehicles. If enacted into law, these provisions build on congressional action in passing the 1990 Clean Air Act Amendments which included quotas for sale of "zero-emission vehicles," i.e., electric cars, which must be met by automakers in California and like-minded states.

Public power is a longtime supporter of electric vehicles. Many publicly owned systems have purchased or produced electric trucks, vans and cars to stimulate interest among customers.

APPA's DEED (Demonstration of Energy-Efficient Developments) program is helping to finance conversion of conventional cars from internal combustion to electric drive by six municipal electric systems in Massachusetts and Connecticut, and the Connecticut Municipal Electric Energy Cooperative. The utilities and local technical colleges will monitor performance for meter reading, customer service calls, and facility inspections, and will study the impact of battery recharge on system loads, the potential for load management, and the effects on air quality.

Meanwhile, auto industry effort to produce commercial electric vehicles is proceeding. The General Motors G-Van and the Chrysler TEVan are existing efforts to create a market for fleet vehicles, and GM has created a prototype two-seater sports coupe Impact (from 0 to 60 in 8 seconds, top speed of 75 mph, and 120 miles on a single charge). Impact is viewed as a "second car" (some 42 million U.S. households have more than one car, and an estimated 95 percent of all vehicle trips fall within the Impact's range). Electric Vehicle Marketing Corp. demonstrated an electric bus at APPA's annual conference in June in Washington, D.C. Also displayed in Washington was the LA301, developed by the Clean Air Transport Co. of Sweden under a project managed by the Los Angeles Department of Water and Power; the four-passenger, battery-driven car can travel 150 miles with a gasoline-fueled "range extender."

LARRY HOBART

Electric vehicles have three big advantages: (a) they clean up the air by reducing release of noxious gases, (b) they decrease reliance on foreign oil, and (c) they hold down consumer costs by increasing utility load factors through off-peak charging.

Utilities will play a major part in the successful introduction of widespread use of electric cars through development of the necessary infrastructure. Issues to consider include installation of residential and public charging places, standards for charging cables and plug configuration, building codes, rates for charging, and battery disposal and recycling.

The country's largest municipal electric system is taking leadership in tackling this task. "The Los Angeles Basin has the worst air quality in the nation," notes a DWP briefing paper. "Because the transportation sector is responsible for two-thirds of these pollutants, it has been targeted for cleanup via this exciting clean-fuel technology." Electric vehicles are 97 percent less polluting than gasoline-powered cars per mile traveled, even accounting for emissions from power plants due to recharging electric batteries, DWP observes.

In July, the Los Angeles City Council announced a 10-point action plan to provide charging facilities for employees who regularly drive EVs, set an annual percentage of EV purchases for the city's fleet, develop EV metering and economic incentives for commercial and industrial customers, write codes that make 17 percent of certain parking spaces EV-ready, give preferential parking rights to EV users, encourage employment of EV shuttles at the airport, promote EV carpooling and rental car additions, and urge installation of charging stations at California highway rest stops.

This is an industrial policy that makes economic and environmental sense. PP

Buyer Beware

Long-sought transmission access opportunities pose negotiation problems

by Dave Penn

What a strange title to use regarding the long-awaited arrival of increased transmission access in the United States. I personally have been working toward that goal for nearly 20 years, and the American Public Power Association has been in the trenches working effectively on this issue for much longer than that. After all that time, many transmission-owning utilities have finally been negotiating "voluntary" transmission access provisions in the last few years. In addition, as this is written, Congress is on the verge of passing a national energy bill that most likely will contain language that will clarify the Federal Energy Regulatory Commission's authority to mandate transmission access in the interests of competition and efficiency.

These recent developments and the power supply opportunities that they bring are welcome indeed. But the old management cliche that "a problem is really an opportunity" must be stood on its head regarding transmission access negotiations. Transmission access opportunity is also a negotiation problem. There remain significant problems to be guarded against in these negotiations for fear that the new opportunities will not be realized or not realized to their fullest potential.

In 1989, Public Service Co. of Indiana, Entergy Corp., and Wisconsin Power and Light Co. filed open access transmission schedules with FERC. These were approved and lauded by regulators as good examples of the kinds of provisions that stimulated desirable competition in wholesale power markets.

Also during that time, FERC used its special acquisition review powers and mandated transmission access as a condition for its approval of the PacifiCorp-Utah Power and Light merger. Since then, the Northeast Utilities acquisition of Public Service Co. of New Hampshire met a similar fate, and gestating transmission access negotiations—or renegotiations—have blossomed in many states, including Minnesota, Wisconsin, California, Iowa, Colorado, Michigan and the New England states.

Concurrent with this process, the newly emerging independent power producer segment of the industry began demanding transmission access in order to be able to offer alternative supply sources. These independents joined with consumers, environmentalists, and the consumer-owned utilities and their trade associations to lobby for transmission access legislation as part of any Public Utility Holding Company Act changes in the national energy bill.

To succeed in negotiating transmission, it is important to understand your own local and regional situation. State laws, technical and geographic constraints, existing transmission arrangements, historical dealings with your negotiating partners, relative bargaining power, and management perspectives will all influence the resulting contract.

It is equally important to understand the impact of developing FERC and con-

seeks continued commonwealth status for the island and is a member of the Senate committee investigating Cogentrix, has said that all aspects of the plant must be studied before she will take a position.

On May 25, the Puerto Rico Senate passed a bill that prohibits the future construction of plants that generate electricity from coal—the first such legislation of its kind in the United States. Yet House passage of the bill appeared unlikely during this current legislative session, meaning that the controversy is likely to resume with full force once elections are out of the way in November.

Peedin, whose company has built similar plants in North Carolina, Virginia and Pennsylvania, argues that Puerto Rico's pending anti-coal measure "is contrary to the national energy strategy, and is not justified on the basis of current technology."

"There would be no reason to relocate the plant, because we haven't found a better site in Puerto Rico, and there's no technical reason why the plant cannot be permitted," Peedin said.

One reason the process is so stringent is the simple fact that more than 3.6 million people and 2,000 factories are crowded onto this 3,500-square-mile Caribbean island.

Julia Mignucci, president of a grass roots group known as Mayaguez Residents for a Healthy Environment, said her organization opposes the use of coal as a fuel for generating electricity in Puerto Rico.

Mignucci, who has a doctorate in plant pathology and teaches biology at the University of Puerto Rico's Mayaguez campus, said her group has collected 15,000 signatures of Mayaguez residents opposed to the plant.

A recent report by the Southern States Energy Board, a public agency that advises 16 southern states and Puerto Rico on energy matters, concluded that the plant would pose no environmental or health dangers. It said Cogentrix plans to use seawater scrubbers and low-sulfur coals to minimize sulfur dioxide emissions and low-nitrogen oxide burners that would reduce nitrogen oxide emissions.

On the other hand, Puerto Rico's Department of Natural Resources found the project could threaten marine life and air quality. In addition, the DNR noted the danger of toxic gas and residue leak into the air, and the impact of waste discharges into Mayaguez Bay. Endangered manatees and leatherback turtles could also be harmed by waste dumping, the report noted. Cogentrix submitted additional information required by the Environmental Quality Board to refute such Natural Resources Department arguments.

Mignucci said the answer isn't coal, but conservation, combined with greater use of solar and wind energy. She added that a plan by Cogentrix to sell excess steam to nearby tuna canneries could fall apart if StarKist Foods Caribe and other companies move their plants to the Dominican Republic or Mexico, where wages are considerably cheaper. According to a recent report by a local business newspaper, *Caribbean Business*, StarKist will expand its work force at its Mayaguez plant by 500 employees.

"We're a very densely populated island," said the professor, "and Mayaguez Bay is already under a lot of environmental stress because of the tuna canneries. What doesn't go out through the chimney will go into the bay."

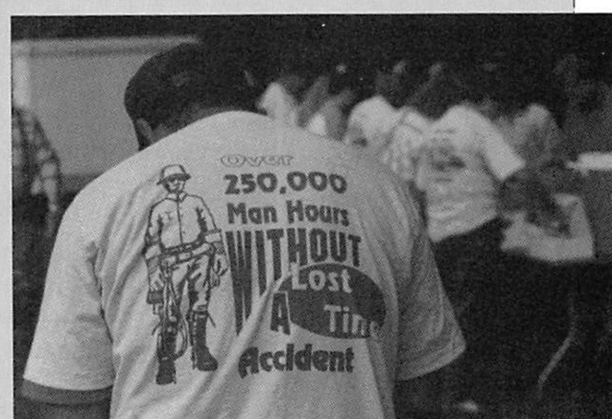
by Larry Luxner

Clarksville Tallies Record Number Of Accident-Free Days

The 78 employees of the Clarksville, Tenn., Department of Electricity are celebrating. On July 16 they reached 650 days without a lost-time accident, surpassing a previous record by almost 200 days.

The U.S. Department of Labor's Occupational Health and Safety Act defines lost workday cases as "those cases which involve days away from work or days of restricted work activity, or both."

"Job-related accidents are extremely expensive for any organization and we have had our share," said CDE General Manager Dalton Smith. "This achievement is the result of dedicated professional employees committed to a goal," he said.



Clarksville, Tenn., Department of Eletricity employees celebrated their high safety record at a picnic.

On May 27, the 600-day mark, employees received t-shirts at an after hours picnic. CDE board members and management were dishing out food and pats on the back for the accomplishment.

Clarksville Department of Electricity is looking ahead to Oct. 5 when it hopes to reach two full years without a lost-time accident.

Communications Workshop And Legal Seminar Planned For This Fall

Public power communicators will learn how to get the word out more effectively at APPA's 1992 Energy/Customer Services and Communications Workshop Oct. 19-21 at the Royal Sonesta Hotel in Boston/Cambridge, Mass. Topics scheduled for the three-day workshop include quantifying conservation programs, video-making, quality customer service and energy education programs. A special idea-sharing session is planned for joint action agencies and state and regional power associations

For more information about the workshop or to register, call Sue Purvis, APPA, at 202/467-2926. To make room reservations, contact the hotel directly at 617/491-3600.

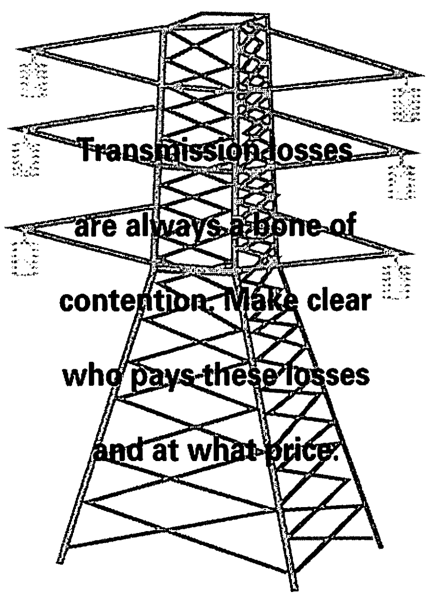
APPA's Legal Seminar will be held Oct. 12-14 at the Westin Bayshore in Vancouver, B.C. City attorneys and public power managers will have an opportunity to get up-to-date information on the Federal Energy Regulatory Commission, national energy legislation's impact on public power, the Americans With Disabilities Act and power supply bidding.

For more information on the Legal Seminar or to register, call Jessica McKendry, APPA, at 202/467-2923.

irm transmission capacity would have been.

Negotiating the final component of transmission access, the terms of service, is the most tricky because it is fraught with detail and unknowns. It also is crucial because your results will dictate how things will actually work.

While you may be offered point-to-point transmission service, seek network or system access or something as close to that as possible. Point-to-point service may allow you to transmit from point A to point B, say from generator A to interconnection or load point B, but it does not allow you the flexibility to dispatch your resources against your loads. Point-to-point service is a contract path fiction that could force you to undertake a separate transaction and to pay a separate charge for every change in generator source or every change in delivery point. Because it is usually one way, you also could end up paying twice for the same line to ship energy in one direction in the morning and the opposite direction in the afternoon.



You need to be able to schedule and reschedule resources as market, load and operating conditions change. If full network access is not obtainable, seek to pay a nominal rescheduling fee that is a proxy for the costs that such rescheduling causes. Have interconnection points predesignated with transmission owners as available so that economic opportunities are not lost because operators cannot get the necessary approval fast enough. In the interests of both parties, allow lists to change as either capacity tightens at certain interconnection points or other points are added or upgraded. Also, preapprove alternate generator sources or selling companies or even an entire coordinated pooling area, so that when your unit trips out, your operators can use transmission rights to secure alternatives immediately.

Look out for delivery restrictions. Some transmission owners try to refuse to deliver power and energy that you have purchased from outside their own service area or immediately adjacent service areas. Get your delivery points within any supplier's control area totalized. This is especially relevant for joint action agencies purchasing for multiple member loads that are separate islands within such control areas. This way you avoid the risk of having to pay a separate transmission charge or rescheduling charge every time the loads of your delivery points deviate from anticipated levels. You also avoid a scheduling nightmare and can then shave peak against a single demand peak.

Transmission losses are always a bone of contention. Make clear who pays these losses and at what price. Get the option to provide these losses yourself from alternative sources. Determining the amount of losses is something you have to verify. Get access to the studies and their support data and computer models. Establish in advance an acceptable grievance mechanism in the likely event that differences of opinion arise.

Indemnity against third-party impacts is a mushrooming concern. The transmission owner will try to push all future liability over to your side of the table. You will be asked to indemnify all transactions against claims from a third party seeking compensation because some of the electricity actually flowed over his lines rather than strictly over the contract path. Look out. If you are not careful, you may end up liable to pay the full price to your original contract partner plus the percentage share of that price that corresponds to the percentage of the energy flowing over other systems. This, of course, is expensive and discriminatory. Your payment for third-party impacts should be netted against your original obligation so you never pay more (or less) than 100 percent of your share of the legitimate transmission costs for the transaction.

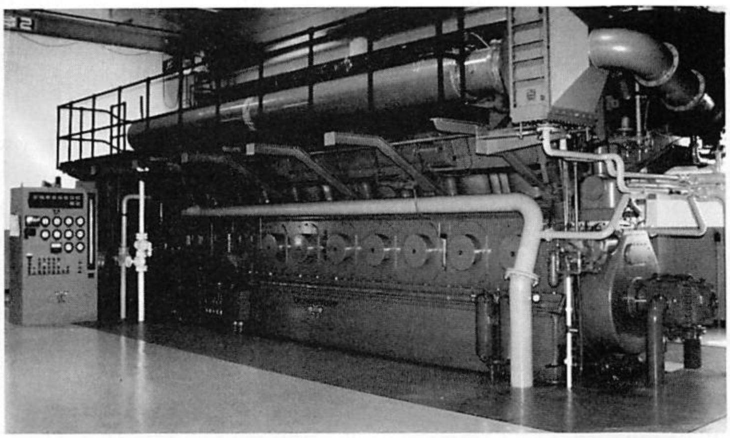
Be wary in negotiations for long-run investments in transmission facilities, whether in the form of continuing payments or ownership. Are the facility improvements radial or system? If they are system, are you unfairly paying full cost, or are the costs being netted out to account for the benefits that your improvements will yield simultaneously to the system owners? What are your maintenance cost obligations? What are the cost escalators or indices used for investment and/or maintenance obligations? Make sure the timing of investment requirements matches your own financing and ratemaking goals. Make sure the length of the entitlement is understood, as well as what happens at the end of that period and who controls these decisions when you arrive at that future time.

Specific day-to-day operations' questions are very important. Be alert to "set up" restrictions such as the possible need to have a 24-hour dispatch center, your own control or subcontrol area, or a certain number of interconnection points at a certain voltage level. Be clear on definitions of any such constraints. Establish clear rules on operator notices to be given, response times, what time of day schedules are to be set, how many schedule changes are permitted, interruption priorities, and penalty provisions for errors in load following, regulation, and emergencies.

Look out for various problems related to the regulatory approval process. The transmission owner may leave an out if it fails to secure regulatory approvals after a good-faith effort. That needs to be monitored. The owner may ask you to sign an agreement that voids your deal if any changes are made by regulatory authorities, or that gags you from commenting further if the arrangement is challenged at FERC. This is predictable, but not appropriate if you have unequal bargaining power and have had to accept something that was better than where you

[redacted]

We Speak Diesel.



COMPLETE ENGINE GENERATORS 500 KW – 6500 KW & ENGINE PARTS FOR:

ALCO • BALDWIN • COOPER-BESSEMER • E.M.D • ENTERPRISE • JOHN DEERE FAIRBANKS-MORSE • GE NORDBERG • SUPERIOR WAUKESHA • WORTHINGTON

We own the best names in the business.

Buy O.E.M. Reliability From Our Fuel Injection Division

ADECO FUEL SYSTEMS

AMBAC INTERNATIONAL
APF PRODUCT LINE
FORMERLY AMERICAN BOSCH

Bendix
FUEL INJECTION SYSTEMS

Complete Manufacturing Facilities for New Fuel Injection Assemblies & Component Parts • Factory Rebuilds with Warranty (fuel pumps, injectors & nozzle assemblies) • Complete R & D Facilities (prototypes) • Nuclear and Aerospace Quality Control Approved Facilities • Overnight Deliveries

We Speak Diesel.

HAYNES Corporation

ENGINE PARTS: SALES & SERVICE:
Dept. AP
P.O. BOX 179
JACKSON, MI 49204-0179
1-800-255-5236
FAX 1-517-764-4650

FUEL INJECTION: SALES & SERVICE:
Dept. AP
P.O. BOX 7547
NAPLES, FL 33941
1-800-Help Now 1-813-643-3013
FAX 1-813-643-5311

were but still less than reasonable. Try to get a favored-nation-type provision so that if your bargaining partner offers a better deal in the near future to someone nearly identically situated, you will be put on the same footing. The recent Entergy case provides an extreme illustration. There, parties that have signed transmission access contracts previously are precluded from having access to the newly filed transmission tariff provisions.

Even strictly procedural matters can be a problem. Be careful of the constraints in agreeing to keep everything confidential. Do not give away future legal rights that may be needed if a contest develops. Be careful of the often conflicting requirements that municipals must deal with all the time between confidentiality and public meeting and open records laws. Make sure you are included if your bargaining opponent engages in related prefiling conferences at FERC. Much can be said at such meetings and much can be mischaracterized or misused. Once a filing is made, such limited nonpublic conferences with FERC and its staff are precluded because of ex parte problems. However, no such ex parte protections exist for prefiling conferences. (FERC is currently reviewing this and other related matters.)

This long list of things to look out for in negotiating transmission access does not come close to covering everything. One can add: access to records and audit procedures, resale and assignability rights, inheritance of obligations by successor corporations, insurance provisions, bill-paying specifics, and overall planning and grievance mechanisms, among many others often unforeseen.

After decades of relative stability in terms of industry and corporate structure and regulatory institutions, the electricity supply industry is in the midst of a period of significant change. As rapid as changes have been lately, the pace is likely to accelerate dramatically for the rest of the 1990s. This will be due in large part to relaxation of the holding company act and mandated transmission access, along with the corresponding FERC decisions. Old rules and old expectations will not necessarily apply.

The increase in transmission access is an exciting opportunity for public power systems. It also brings with it the burden of negotiating that access with current owners and interested parties such as state and federal regulators. These negotiations will be complex and there will be a lot of detail. The short message is: plunge ahead, but look out for the numerous problem areas.

In the end, just as with monitoring your own medical health, the best person to look out for your own transmission access interests is you. This will become even more true if the current trend continues and courts and regulatory agencies become less of a consumer backstop. Recognize the full context within which you are negotiating and do not be pressured or rushed. The U.S. electric utility industry is moving your way—in the direction of more competition and access for those seeking transmission services. PP

Dave Penn is director of policy analysis at the American Public Power Association and former general manager of Wisconsin Public Power, Inc. System.